WHAT IS CLAIMED IS:

1. A dual damascene process comprising:

sequentially forming a first etch stopping layer, a bottom intermetal dielectric layer, a second etch stopping layer and an upper intermetal dielectric layer on an entire surface of a semiconductor substrate having a bottom interconnection;

successively patterning the upper intermetal dielectric layer, the second etch stopping layer, and the bottom intermetal dielectric layer by using a first etch recipe to form a first recessed region exposing a predetermined region of the first etch stopping layer;

forming a bottom-protecting layer having a planarized surface on the upper intermetal dielectric layer and in the first recessed region;

successively patterning the bottom protecting layer and the upper intermetal dielectric layer by using a second etch recipe to form a second recessed region being overlapped with the first recessed region and having a wider width than the first recessed region;

selectively removing the bottom protecting layer to expose the predetermined region of the first etch stopping layer; and

removing the first etch stopping layer exposed by at least the first recessed region to expose the bottom interconnection,

wherein the second etch recipe uses an etch gas that makes an etch selectivity of the upper intermetal dielectric layer with respect to the bottom protecting layer to be about 0.5 to about 1.5.

2. The dual damascene process as claimed in claim 1, wherein the upper and bottom intermetal dielectric layers comprises silicon oxycarbide (SiOC:H).

3. The dual damascene process as claimed in claim 1, wherein the bottom-protecting layer comprises hydrogen silsesquioxane.

4. The dual damascene process as claimed in claim 1, wherein the second etch gas comprises a mixture of a high-ratio fluorocarbon (C_VF_W) and a low-ratio fluorocarbon (C_XF_Y).

5. The dual damascene process as claimed in claim 4, wherein V/W is about 0.5 or greater in the chemical formula C_VF_W of the high-ratio fluorocarbon.

6. The dual damascene process as claimed in claim 5, wherein the high-ratio fluorocarbon is C_4F_6, C_5F_8, or C_4F_8.

7. The dual damascene process as claimed in claim 4, wherein X/Y is about 0.4 or lower in the chemical formula C_XF_Y of the low-ratio fluorocarbon.

8. The dual damascene process as claimed in claim 7, wherein the low-ratio fluorocarbon is CF_4 or C_2F_6.

9. The dual damascene process as claimed in claim 4, wherein a flow rate ratio of the high-ratio fluorocarbon with respect to the low-ratio fluorocarbon is about 0.5 to about 1.5.

10. The dual damascene process as claimed in claim 1, wherein the second etch gas comprises a mixture of a high-ratio fluorocarbon (C_VF_W) and a fluorohydrocarbon(CH_TF_U) as an etch gas.

11. The dual damascene process as claimed in claim 10, wherein V/W is about 0.5 or greater in the chemical formula C_VF_W of the high-ratio fluorocarbon.

12. The dual damascene process as claimed in claim 11, wherein the high-ratio fluorocarbon is C_4F_6, C_5F_8, or C_4F_8.

13. The dual damascene process as claimed in claim 10, wherein the fluorohydrocarbon is CH_3F, CH_2F_2, or CHF_3.

14. The dual damascene process as claimed in claim 10, wherein a flow rate ratio of the fluorohydrocarbon with respect to the high-ratio fluorocarbon is about 0.5 to about 1.5.